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Danielsen, Solveig; Matsiko, F.B.; Kjær, A.M.

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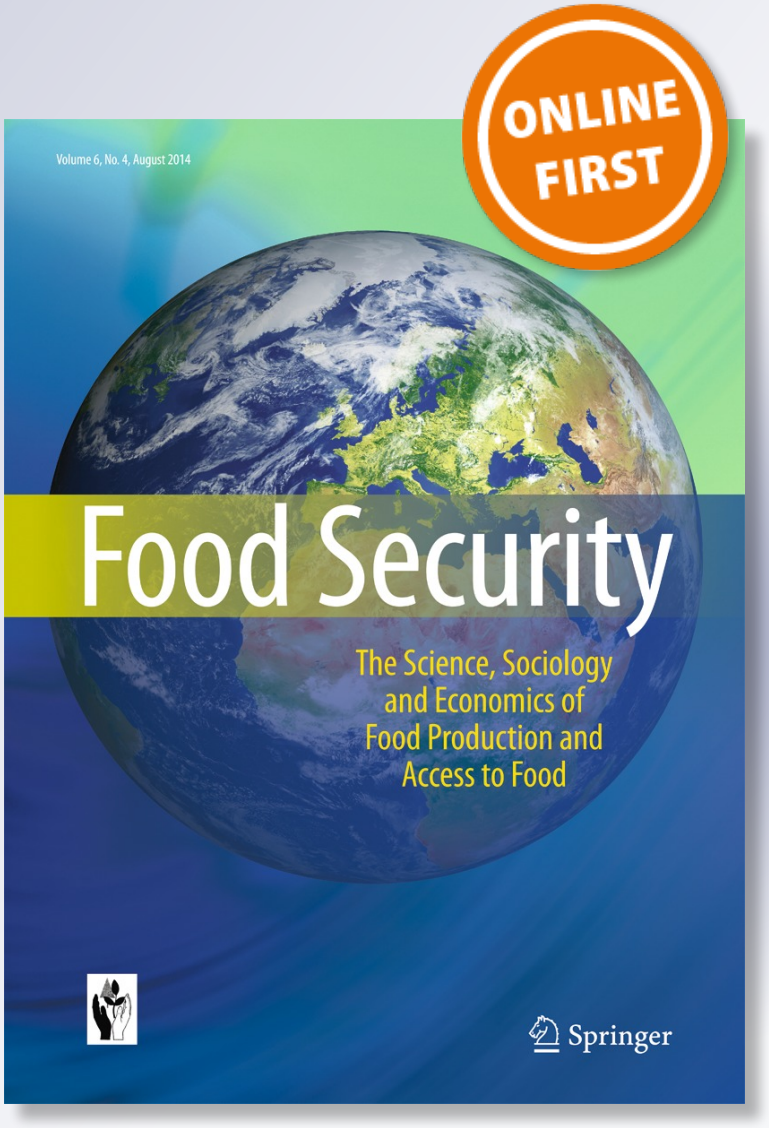

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ORIGINAL PAPER

Implementing plant clinics in the maelstrom of policy reform in Uganda

Solveig Danielsen · Frank B. Matsiko · Anne Mette Kjær

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Abstract Pests and diseases are key production constraints for Ugandan small-scale farmers. In 2010, the Ugandan Government, as part of its agricultural development strategy, adopted plant clinics to improve plant health extension for farmers and to contribute to strengthening disease surveillance. Despite government commitment and a growing demand for this new type of farmer service, effective implementation of plant clinics turned out to be a challenge. We examine how agricultural policies and institutional setups, and their political context, influenced the implementation of plant clinics from 2010 to 2011. We argue that the political agenda surrounding the decentralization and agricultural extension reforms, initiated in 1997, substantially weakened the Ministry of Agriculture, Animal Industry and Fisheries and undermined institutional stability and the effectiveness of delivery of public extension services. Implementation of plant clinics was further affected by a new district reform and the national elections taking place during the study period. The dual purpose of the plant clinics created uncertainty about their organisational belonging. They fell through the cracks of extension and disease control. This was exacerbated by the unclear roles and authority of the Ministry vs. local governments. For plant clinics to succeed the fundamental issues of governance, resources and implementation structure need to be addressed. The Ugandan experience shows the importance of understanding not only the policy and institutional frameworks in which plant clinics operate, but also the effects of political imperatives and donors on policy implementation. This study provides a basis for institutional and policy analysis related to the implementation of plant clinics elsewhere.

Keywords Uganda · Plant clinics · Agricultural policy · Politics · Agricultural extension · Plant health

Introduction

This paper seeks to identify and understand the extent to which politics, policy and pre-existing institutions have influenced the way plant clinics have been implemented in Uganda. Pests and diseases are some of the main production constraints, leading to significant yield losses and sub-standard quality of produce among small-scale farmers (Benin et al. 2007; Bukenya 2010; Savary et al. 2012). Major pests, such as cassava mosaic disease, cassava brown streak disease, banana bacterial wilt, Striga and wheat stem rust Ug99, constitute a constant threat to the food security and livelihoods of sub-Saharan African farmers (Vurro et al. 2010; Beed 2014). Like most African countries, Uganda is ill equipped to safeguard crops against existing and emerging pest risks associated with climate change, increasing globalization and human mobility. Diagnostic services, for example, are scarce and poorly coordinated (Smith et al. 2008; Miller et al. 2009). At an average

S. Danielsen (✉)
Centre for Health Research and Development,
University of Copenhagen, København, Denmark
e-mail: s.danielsen@cabi.org

F. B. Matsiko
Department of Agricultural Extension and Innovation,
Makerere University, Kampala, Uganda
e-mail: fbmatsiko@gmail.com

F. B. Matsiko
e-mail: fbmatsiko@caes.mak.ac.ug

A. M. Kjær
Department of Political Science and Government,
Aarhus University, Aarhus, Denmark
e-mail: MKJAER@ps.au.dk

Present Address:
S. Danielsen
CABI, Kastanjelaan 5, 3833 AN Leusden, The Netherlands

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extension worker-to-farmer ratio of only 1:3,189 (MAAIF 2012), most Ugandan farmers do not have any access to agricultural extension services (UBOS 2010; Bashaasha et al. 2011). Public crop protection measures are mainly restricted to border control and sporadic field inspections with hardly any services to deal with farmers' day-to-day crop health problems. There is a pervasive feeling among Ugandan extension organisations and line ministry officials that farmers have been abandoned in their struggle against an escalating plant pest and disease burden (Danielsen et al. 2012).

In 2006, four pilot plant clinics were established in three districts of Uganda (Mukono, Iganga and Soroti) as a novel way to provide plant health advice to farmers. The plant clinic initiative was started with technical and financial support from the Global Plant Clinic (GPC) of CABI[1] as a collaborative effort between district local governments (LGs) and non-governmental organisations (NGOs) as implementers and the Department of Crop Protection of the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) as coordinator.[2] LG and NGO extension workers were trained by GPC while MAAIF offered technical backstopping to the clinics and participated in occasional monitoring visits with GPC staff. At its core, a plant clinic is a simple rural service, run by trained agricultural extension workers, often referred to as 'plant doctors', who operate in a similar way to community health workers for humans. The plant clinics are set up to offer general plant healthcare (diagnostics and advice on any problem in any crop, biotic and abiotic) and are open to everyone, typically once a week or fortnight (Boa 2009).

Results from the pilot phase showed that plant clinics have the potential to add value to extension by expanding service coverage and improving regular collection of pest and disease information at the farmer field level (Danielsen and Mutebi 2010). These early results also indicated that the plant clinics could become a vehicle for creating new synergies among farmers, extension, input suppliers, MAAIF and experts from research institutes and universities, thus more efficiently use existing resources and capacity (Danielsen and Mutebi 2010). The plant clinic records of farmer queries revealed a potential to become a multi-purpose tool that could be used both for assessing service quality and supporting decision making at local and central level (Danielsen et al. 2013). These results convinced senior managers within the Department of Crop Protection that the dual-purposed plant clinics could help improve national responsiveness to pest and disease risks by providing the much needed plant health advisory services to farmers and strengthening pest alertness on the ground. In this way the plant clinics would complement the limited surveillance resources and capacity of the Ministry (Danielsen and Mutebi 2010).

Against this background, the plant clinics were officially recognised by MAAIF in 2010 with their inclusion in the 5-year Development Strategy and Investment Plan 2010/11–2014/15 (DSIP) under the Pest and Disease Control sub-programme managed by the Department of Crop Protection (MAAIF 2010). This inclusion in the DSIP gave formal endorsement for government funding and legitimised the expansion and consolidation of the plant clinic programme.

The plant clinic initiative was subsequently expanded in 2010 and 2011 although the scale of operations was still small compared to the mainstream extension system. This phase was characterised by new funding from CABI (small start-up grants), MAAIF and some of the participating LGs and NGOs, leading to enhanced actor engagement both at the national and district levels. In the 2011/12 DSIP budget, 40 million Ugandan Shilling (~20,000 USD) were allocated to plant doctor training of extension workers, provision of basic plant clinic tool kits, monitoring visits and technical backstopping (MAAIF 2011). The Department of Crop Protection of MAAIF created a small core team to organise plant doctor training and stakeholder meetings, procure tool kits for selected districts and carry out monitoring visits.

These positive developments notwithstanding, plant clinic implementation faced severe challenges due to the national political economic context and the influence it has had on agricultural policy and institutions. It is often assumed that once a policy has been decided, its implementation will be relatively straightforward. However, policy implementation consists of a series of policy decisions (Thomas and Grindle 1990) and is therefore subject to changes as the political winds blow. Ignoring politics can have unintended consequences for policy implementation (Dijkstra 2011). The institutionalization of regular elections, can be a powerful element in explaining why some policies get implemented while others do not (Kjær and Therkildsen 2013). Elections may drive policy design in directions that were not initially intended (Faust 2010). Often there is a clash between what is politically expedient and what is technically prudent. Donors have an intrinsic influence. They may promote the implementation of initiatives that would otherwise not have been prioritized by government. Donors have a tendency to base programmes on assumptions that underestimate the challenges of policy coordination and reform (Faust 2010). They also often fail to acknowledge their own influence on reform processes. As Hout (2012) argues, donors habitually are interested in 'doing development' by technically implementing programmes to show results on the ground rather than engaging with the more complex and difficult

[1] In 2012, the GPC developed into Plantwise, a global, CABI managed programme, aiming at strengthening plant health systems through plant clinics in Africa, Asia and Latin America (33 countries in 2014).

[2] In Uganda, agricultural extension is decentralised and falls under the authority of the 112 district LGs, while MAAIF has a role of policy guidance and oversight.

political environment that perhaps may be important for implementation.

In the following, we examine the agricultural extension and pest and disease control policies in Uganda as well as the political context in Uganda since the onset of administrative decentralization in 1997. We describe plant clinic achievements from 2010 to 2011 and identify barriers to progress. Finally, we discuss how the national politics, policies, and institutional set-ups influenced plant clinic implementation. This paper is a result of a broader study on plant health systems in Uganda and represents an in-depth analysis of one of the system components used by Danielsen and Matsiko[3] , namely, 'policy, leadership and governance'.

Methods

We analysed plant clinic implementation in Uganda with a focus on the period 2010 to 2011. The study districts included those where plant clinics had been operating since 2006 (Soroti, Serere, Mukono and Buikwe) and others where the plant clinic initiative started in 2010–2011 (Kayunga, Kumi, Bukedea, Ngora, Bukwo, Katakwi, Hoima, Kasese and Bundibugyo). Data were collected through semi-structured interviews and review of plant clinic records. We also reviewed relevant agricultural policy documents, budgets and evaluation reports. Key policy and strategy documents included: Local Governments Act (1997), The Plant Protection Act (1962), NAADS Act (2001), Agricultural Technology and Agribusiness Advisory Services Project (World Bank 2010a), Development Strategy and Investment Plan (DSIP) (MAAIF 2010), Ministerial Policy Statement (MAAIF 2011), and Proposed Action Plans for the Agricultural Revolution of Uganda (MAAIF 2012). Key informants included plant clinic staff and coordinators; political, administrative and technical leaders from Local Governments; senior officials from MAAIF and National Agricultural Advisory Services (NAADS); relevant politicians, including a former minister of agriculture; and representatives from donor agencies. Table 1 lists the DSIP components and key actors of relevance to the plant clinics, which will be referred to throughout the paper.

Although the term 'plant health' has a wider connotation than 'crop protection' and 'pest and disease control', these three terms are used interchangeably in this paper, according to how they were used by the informants and in the references. Unless otherwise stated in the text, MAAIF refers to the Department of Crop Protection.

[3] Using a plant health system framework to assess plant clinic performance—an example of cross-sectoral learning. *Food Security* (submitted).

Policy implementation

Plant clinics—progress and barriers

In the study period, 23 plant clinics were run in 13 districts and more districts were beginning to show interest in joining. As the following observations by several key informants indicate, demand for better services to farmers and better pest information systems became more explicit over the same period. A Local Council V Chairman from central Uganda observed: '*The farmers have lived with the diseases for so long that they have become immune. They are used to big losses. Something needs to be done*'. One of the plant doctors was clear in his view: '*The plant clinics can do things that no other extension method can*'. A MAAIF official was similarly categorical about the value of the plant clinics: '*There is no other way we can gather regular information about pests and diseases from farmers' fields*'. Another Ministry official expanded on this: '*The plant clinics help improve extension and surveillance and for the farmer it is help at the doorstep. Everybody gets something out of it*.'

Queries on more than 50 different crops, including a wide range of roots and tubers, cereals, vegetables, pulses and minor crops were presented by farmers to the plant clinics from July 2010 to September 2011 (14 months). The clinics received a total of 2,598 queries from 2,069 clients. These clients came from 20 districts and 851 villages, covering significant geographical distances within each district.[4] Although farm-level outcomes remain to be demonstrated, farmer testimonies revealed a strong demand for this type of advisory service (Karubanga et al., unpublished). Farmers appreciated the inclusiveness of the service and the 'any crop, any problem' approach of the plant clinics. Most other farmer services and projects, both NAADS and NGO-led, work with defined farmer groups on selected crops and problems.

MAAIF's renewed involvement enhanced staff visibility and motivation. The plant doctor training courses, in particular, were well received. One of the trainees, an Assistant Agricultural Officer from Ngora district, for example, had this to say about the MAAIF-led training: '*This is the first time in the last 12 years I realise that I belong to the Ministry of Agriculture*!'

Apart from conducting plant doctor training, however, there was limited progress with MAAIF's other intended contributions. Because of delays in the release of DSIP funds and the Ministry's bureaucratic procurement system, plant clinic tool kits had not yet been delivered to the new districts by the end of 2011 (interview with MAAIF senior official). In

[4] More detailed results on the Ugandan plant clinics, including the roles and performance of NGOs vs. LGs, are presented in Danielsen and Matsiko: Using a plant health system framework to assess plant clinic performance—An example of cross-sectoral learning. *Food Security* (submitted).

Table 1 DSIP and key actors of relevance to the plant clinic initiative

Subject	Acronym	Description
DSIP		
Development Strategy and Investment Plan	DSIP	The DSIP constitutes the national policy for development of the agricultural sector in Uganda. DSIP is implemented by MAAIF, its agencies and Local Governments (MAAIF 2010).
Component 1. The Agricultural Technology and Agribusiness Advisory Services Project	ATAAS	ATAAS is a program implemented by NAADS and NARO and constitutes the largest component of DSIP (World Bank 2010a)
Component 2.	'non-ATAAS'	All the DSIP components outside the ATAAS.
Actor		
Ministry of Agriculture Animal Industry and Fisheries	MAAIF	Lead ministry in charge of overall DSIP management and implementation
Department of Crop Protection	DCP	Department of MAAIF in charge of the Pest and Disease Control component of the DSIP, *which includes support to plant clinics*
The National Agricultural Advisory Services	NAADS	Semi-autonomous agency under MAAIF in charge of delivering agricultural advisory services through LGs under ATAAS. *Plant clinics not formally part NAADS, but NAADS staff run plant clinics in some districts*
The National Agricultural Research Organisation	NARO	NARO is the apex body of the national agricultural research system in Uganda and in charge of technology development under ATAAS. *Ad hoc informal engagement with the plant clinics.*
Local Government	LG	LGs are responsible for delivering agricultural advisory services under NAADS, as well as 'non-NAADS' functions such as pest and disease control, extension, regulation, planning and statistics. *Both NAADS and 'non-NAADS' extension workers operate as plant doctors.*

addition, few ministry staff were available for clinic-related activities, and operations were restricted by limited funds and tardy administrative procedures. The overall DSIP budget was not only partially funded (see next section) but was also clouded by uncertainty about how much would be available to support plant clinics (interview with senior official, MAAIF). As a consequence, monitoring and backstopping of plant clinics could not be carried out. There was also little visible progress on the establishment of a system for handling the data captured in the plant clinic records. This is a key priority for MAAIF in enhancing the national plant health information system and the attendant disease surveillance.

Most plant clinics were scheduled to operate once a fortnight. However, operations were irregular, especially in the electoral period from late 2010 to March 2011 where there were few LG-led plant clinic activities. The NGOs were less affected by political and institutional events (see section on elections and district reform). They maintained plant clinic operations although with varying regularity. The erratic operations combined with insufficient publicity made several plant clinics rather invisible and unstable.

While there were a few signs of incipient institutionalisation, overall the plant clinics remained on the periphery of the existing system. Some LGs included the plant clinics in their budgets and work plans, but not among the core functions of the extension staff, who consisted of both NAADS and 'non-NAADS' LG staff. For some of the districts, plant clinic operations remained dependent on CABI funding.

Over the period under review, the plant clinic initiative was rolled out in a rather loose and unregulated manner. The roles and responsibilities of MAAIF, LGs, NGOs and CABI were apparently not clearly agreed upon. LGs had not been involved in the formulation of the plant clinic component of the Development Strategy and Investment Plan (DSIP), so the mode of operationalization remained undefined. It was not clear who was providing overall championship and leadership, MAAIF or CABI, to guarantee that basic standards and procedures were in place and followed up. While the basic aspects of plant clinic operations were well understood by all organisations, no common standards were established internally in the plant clinic organisations or externally from the backstopping institutions. Accordingly, no shared norms regarding record keeping, use of plant clinic data, monitoring and reporting, coordination and communication were discernible. Each district tended to address its plant clinic challenges in its own way. A first step towards understanding the faulty plant clinic implementation is to recognise the hurdles to implementing the DSIP.

DSIP implementation in general — through the road blocks

A closer look at the overall implementation of the Development Strategy and Investment Plan (DSIP) shows that many of the plant clinic challenges were not limited to this component of the strategy. Soon after the approval of the DSIP in 2010, critical voices pointed out that the 'non-ATAAS' components (Table 1) of the DSIP (all that is not covered by ATAAS) would be problematic to implement, since they did not match the governance structure and institutional setup of MAAIF and its agencies. Criticism was expressed both from MAAIF and donor representatives about the design and level of ambition of the DSIP. As one MAAIF official noted, '*The implementation of DSIP is haunted by the in-built contradictions. The ministry is structured by sub-sector but the DSIP is designed by function. It is not implementable*.'

Seeking a pragmatic solution to these problems with the implementation structure developed by MAAIF with substantial donor participation, a new action plan was designed for the 20 'non-ATAAS' components of the DSIP (MAAIF 2012). The plan prioritizes 13 major value chains and several thematic areas. In the plan's base document, pest and disease control is only given a fleeting mention under 'climate change' in the section on 'cross-cutting issues' as follows: '*Plant pests and diseases will be addressed by strengthening phytosanitary and quarantine services… This will protect Uganda's crops and environment from invasive species*.' In addition, distribution of quality seed/seedlings is mentioned as a preventative measure under the value chains section.

Plant clinics are not specifically mentioned in the non-ATAAS action plan. No reference is made to their strategic purpose and contribution to plant health system strengthening as enshrined in the DSIP. Instead, the non-ATAAS plan appears to revert to a narrow view of crop protection that focuses entirely on clean seed and border protection. This suggests that there was insufficient awareness about or buy-in into the plant clinic idea outside the Department of Crop Protection.

Furthermore, the financing of the non-ATAAS plan was uncertain. As of late 2012 only 47 % of the staff necessary to implement the DSIP was in place. In the foreword to the plan, the Minister of Agriculture explains,

> '*implementation of the action plans […] will require tremendous human and financial resources. Already the sector faces an average annual funding gap of about Uganda shillings 150 billion* [ca. 30 % gap]*; as compared to the DSIP ideal budget. I therefore urge all our Development Partners to avail the required resources to implement the action plans in this document. As Government, we will continue to mobilize resources to develop the agriculture sector*' (MAAIF 2012) (1 US dollar=2,605 Ugandan Shillings).

Due to the limited coordination and alignment among donors, however, the implementation of the non-ATAAS components follows a 'piecemeal approach' with donors supporting selected areas on a project basis:

> *'We are supposed to align our efforts but this is not happening. Recently, new donors have come on board but they pick their priority topics, which sometimes don't even fit with the overall DSIP. The Sector Working Group was supposed to guide and oversee the implementation under MAAIF's leadership but it is not working very well,'*

noted a donor representative deeply frustrated by the uncoordinated implementation. The presence of donor projects may in itself contribute to some fragmentation within the responsible agencies. Several studies (Ssewanyana et al. 2009; Kjær and Joughin 2012) indicate that MAAIF has long been subject to some 'projectification' whereby each sub-department has access to a donor project or two and the benefits that this entails. Such 'projectification', however, has a negative impact on overall coordination and coherence in agricultural sector policy. Disagreements among donors and a general lack of trust in MAAIF's ability to effectively implement policy were also cited as reasons for this fragmentation of effort. It was not only within the donor community that lack of coherence was noted. When asked about the invisibility of the plant clinics in the non-ATAAS plan, a senior official from the Department of Crop Protection expressed his disapproval of the plan: '*the non-ATAAS plan is a donor construct. We don't pay a lot of attention to it. The divide between ATAAS and non-ATAAS is artificial.'* He reiterated the Ministry's commitment to rolling out plant clinics across the country by referring to the 70 million Ugandan Shilling (~28,000 USD) allocation in the new DSIP budget for 2013/2014.[5]

Why has is it been so difficult for MAAIF and its agencies to formulate meaningful agricultural policies and implement them in a coherent and effective manner? In the following sections we examine the causes.

Explaining the difficulties in implementing plant clinics

At the policy level, the plant clinics were recognised. Nonetheless, we found several structural and contextual obstacles that caused the problems outlined above, making it difficult for the districts to implement the plant clinics and for the Department of Crop Protection to play the leading role it was assigned in the DSIP. In particular, the politics around decentralization, NAADS, national elections and a new district reform, as well as the unclear belonging of plant clinics provide an important context in which to understand the challenges of plant clinic implementation.

[5] MAAIF Ministerial Policy Statement 2013/14

Decentralization and political imperatives

Agricultural extension was decentralised in 1997 as part of major donor-supported decentralization reforms taking place along with the general liberalisation processes (Local Governments Act 1997). Though well intentioned, for example by aiming to improve accountability and effectiveness in local service delivery (Bashaasha et al. 2011), some of these developments also served to weaken key departments in MAAIF (Interview with a former Minister of Agriculture). The Extension Directorate of MAAIF was abolished in 1998 when LGs took over responsibility for agricultural extension, and in 2001 NAADS was established as a new statutory semi-autonomous body under MAAIF (Bashaasha et al. 2011).

There is a ubiquitous feeling that decentralisation took place too quickly leading to MAAIF's drastically decreased human capacity and the LGs' limited capacity to undertake their new roles. Consequently cross-cutting functions such as pest and disease control in animals and crops were left in a vacuum. The districts ended up with parallel extension systems, NAADS and 'non-NAADS', which frustrated the districts' efforts to establish effective farmer support services. The roles and authority of LGs vis-à-vis MAAIF were never adequately spelled out, leaving both with insufficient means and structures to set up an effective system for pest and disease control (MAAIF 2012; Rwamigisa et al. 2013; interviews with MAAIF and LG senior officials).

There have been many efforts to reform MAAIF so as to improve its efficiency and responsiveness to a sector with many and diverse players. The results, however, have been disappointing. MAAIF has a long track record of inefficiency, fragmentation ('departmentalization', 'projectification') and institutional instability (MAAIF 2012; Batekega et al. 2013). Coordination between sector agencies is weak. Poor incentive systems, heavy bureaucracy and a long history of underperforming have created a demotivating work environment for staff (EPRC 2009; Pasipanodya 2011). A Senior MAAIF Official explained that the problems with agricultural policies in Uganda are largely institutional with lots of disruptions from changing policies and restructuring, leaving government institutions in a state of permanent transition. This, they suggest, led to significant resistance to reform within MAAIF.

Coupled with the establishment of semi-autonomous agencies, notably NAADS and NARO, which drained MAAIF of human and financial capacity (Rwamigisa et al. 2013), the unclear lines of authority have undermined the Ministry's ability to supervise the districts. One of MAAIF's formal functions is to '*monitor, inspect, evaluate and harmonize activities in the agricultural sector including local governments*' (MAAIF's website[6]), yet in reality this function is arduous. Several MAAIF staff members mentioned that the district governance structure limits the Ministry's authority and ability to engage directly with the District Production Departments. The lines of command following the decentralisation entailed a reporting structure where district technical department heads report to the district Chief Administrative Officer rather than to the line ministries. A senior official from MAAIF lamented the situation:

> '*The linkage to the districts is not as strong as we would want because they are under a different administration. We have the technical input but not the administrative linkage. We don't have that muscle to order them around*!'

Another MAAIF senior official expressed deep frustration with the lack of authority and resources to handle major pests and enforce regulations:

> *'We are failing. Farmers end up confused. Many different people work on different aspects of pest and disease control and people get inconsistent advice. There are more pests and diseases than ever before but what we are doing is merely firefighting.'*

The weak relationship with the Ministry was also felt in the districts. '*There is a wide gap between the Ministry and the districts. There is very little follow up on all activities. The institutional arrangements are inadequate; the structures are weak and underfunded*', observed a District NAADS Coordinator from the Teso region. This notion was shared by another District NAADS Coordinator who asserted that district staff would feel stronger and more confident with better backstopping and enforcement from MAAIF. A senior MAAIF official explained the implications for disease control:

> *'The districts carry out disease surveys each in their own way, without any standardisation and coordinated follow up. Activities are scattered and fragmented, and many pests and diseases are getting out of control. If something is not done soon on cassava brown streak we will not have cassava in five years' time'.*

He explained further that the by-laws are not 'biting' because the districts are reluctant to take instructions from the central level and because MAAIF itself does not have the capacity to follow up. He further stated that the situation was aggravated by lack of up-to-date laws and regulations. Despite many attempts to revise the law, the legal framework for pest and disease control is still defined by the Plant Protection Act of 1962. This antiquated law, for example, stipulates a penalty of 2,000 Ugandan Shilling (less than one US dollar) for not complying with an order of an agricultural inspector.

[6] http://www.agriculture.go.ug/About-Us/77

The National Agricultural Advisory Services (NAADS) stealing the attention

Since its inception, the NAADS programme has been the subject of major debates and controversies, both internally and among the donor community (Kjær and Joughin 2012; Rwamigisa et al. 2013). This has resulted in a stop-go process characterised by a sense of insecurity about the future of the programme. Many of the problems encountered related to inadequacies in service provider capacity, local buy-in, co-funding by districts, and public accountability (Muwonge 2007; Bashaasha et al. 2011; Kjær and Joughin 2012; Sseguya et al. 2012). With time, politicians became increasingly involved in the implementation of NAADS. A well-funded programme that reached many farmers became tempting to use to win votes in the period leading up to elections (Kjær and Joughin 2012). This may explain why an input support component was added to NAADS prior to the 2006 elections. The location of the NAADS secretariat outside MAAIF's governance structure and its relatively small size also made it more vulnerable to political interference (Rwamigisa et al. 2013). Matters were also not helped by the design of the second phase NAADS during 2009–2010 coinciding with the electoral campaigns, something that engendered differences of opinion and protracted negotiations between the Government and donor community. Disagreements about governance structure and procedures for selecting beneficiary farmers led to the withdrawal of some donors from the programme, e.g. European Union and Danida, thus creating uncertainty about the future direction and scope of NAADS (interviews with donor representatives). All district agricultural extension activities, including plant clinics, were affected by the delayed initiation of the new phase of NAADS and the uncertainty about its future.

The increased role of the politicians in the implementation of NAADS together with some of the features of the NAADS prototype have had several effects. First, the autonomy of NAADS apparently made it difficult for MAAIF to synchronize NAADS with 'non-NAADS' activities and balance the budgets. Empowered by its own Parliamentary Act, government commitments to donors and hence its own budget line, NAADS became the flagship for government support to the agricultural sector. To the public, government investment in agriculture equalled NAADS and NARO. In the period 2005–2008, 39 % of the allocations to agriculture went to NAADS and 20 % to research (NARO) (Table 2). Less than 1 % went to plant pest and disease control, which was considerably less than the average budgeted 5 %. Other key functions were also consistently underfunded compared to the budgets. According to the Uganda Agriculture Public Expenditure Review (World Bank 2010b) the result was that '*operating funds for the technical departments are severely constrained, rendering them ineffective*'. The heavy prioritization of NAADS and NARO led to significant resentment within MAAIF (Rwamigisa et al. 2013).

Likewise, the transfer of technical capacity and resources from LG to NAADS negatively affected the ability of LGs to carry out other core functions (Rwamigisa et al. 2013). Over 90 % of the district agricultural budgets were earmarked to NAADS (World Bank 2013). As a senior official from MAAIF explained,

> '*The LG extension staff are mandated to fulfil several functions: regulation, pest and disease control, extension, planning and statistics. But with NAADS, the extension workers were taken off to only do extension. This left a big gap regarding the fulfilment of the other functions*.'

This skewed prioritization was further exacerbated as NAADS increasingly became an input supply programme, with more than two thirds of the NAADS allocations going to direct input-support.[7] In a recent NAADS progress report it is recognised that '*the limited focus of the agricultural advisory services needs to be addressed*', for example by '*supporting interventions to control major tropical plant diseases that are threatening food security and incomes (Banana Bacterial Wilt, Cassava Brown Streak Virus*) (NAADS 2013). Plant clinics were not mentioned as a priority intervention, suggesting that there was limited awareness about the plant clinics within NAADS at central level.

We found no example of direct financial contribution from the NAADS budgets to the plant clinics. The acceptance of including the plant clinics in the NAADS activities in several districts thus was apparently nominal. The current budget structure of NAADS does not allow enough local discretionary expenditure. '*This year's (2011) NAADS budget is very tight*,' one of the District NAADS Coordinators said. A senior official from the NAADS Secretariat confirmed that there were few available funds for field activities and little flexibility in how NAADS operates. The funding dilemma has been deepened by the creation of new districts (see next section) and the reduced funding commitment from donors to the new phase of NAADS.

The turbulence caused by general elections and district reform

Plant clinic implementation was further affected by the political circumstances in the study period, which was dominated by elections and a new local government districting reform. Before the 2011 elections, new districts were formed, increasing the number to 112 districts whereas there were about 29 in

[7] This was expressed by several informants, among others a former senior official with the NAADS secretariat, a former minister for agriculture, a District NAADS Coordinator from Eastern Uganda and a Local Council V Chairman from Central Uganda.

Table 2 Proportion of MAAIF budget allocated to DSIP priority areas, compared with DSIP projections, 2005/06 to 2007/08 (percent) (World Bank 2010b)

	Budget allocations			Av. allocations over the period	DSIP average budget projections
	2005/06	2006/07	2007/08		
Research	17	19	23	20	19
Advisory services (NAADS)	30	45	41	39	29
Livestock disease	9	7	4	7	6
Plant pests and diseases	1	1	0	1	5
Livestock and fish regulatory services	2	2	2	2	5
Planning and policy	2	2	1	2	1
Institutional development	4	1	0	2	9
Water capacity building	3	4	4	4	10
Seed capacity development	9	3	3	5	8
Processing and marketing	7	2	2	3	3
Physical infrastructure	12	14	18	15	5
Promotion	3	1	1	2	1

the early 1990s (Kjær and Katusiimeh 2012; Green 2008). New districts are popular because they offer an opportunity for patronage through political appointments and other benefits for the local constituency (Green 2008). For the citizens it also makes sense given that the size of conditional grants extended by the central government to the districts is based on the district as a unit rather than district population.

The number of sub-national administrative units is now one of the highest in the world, making them financially non-viable and difficult to supervise. Many districts are small and weak with limited revenue base; they do not have budgets for more than the earmarked funds that they get from central transfers to cover health and education, but not production sectors. Overall, LG capacity is weak, characterized by low staff retention, low payments, delayed pay and low staff morale (Bashaasha et al. 2011). The 2013 Public Expenditure Review reported that 40 % of district government positions were vacant (World Bank 2013). One implication of this proliferation of districts is that their capacity to implement any policy has been undermined, as the case of the plant clinics demonstrates. Political functions interfered with public sector activities for many months while the recruitment and relocation of staff to new districts took up a significant amount of time and resources (interviews with plant doctors, District Agricultural Officers and District NAADS Coordinators).

Unclear belonging—the plant clinics fall through the cracks

The dual purpose of the plant clinics created uncertainty about where they 'belonged'. Was it under extension or under pest and disease control? Under NAADS or 'non-NAADS'? What was the role of MAAIF vs. LGs? This uncertainty, which was further fuelled by the notion that pest and disease control is 'something MAAIF and LG do', was an obstacle to plant clinic institutionalisation.

According to MAAIF's website, the Department of Crop Protection is in charge of '*all matters related to plant health*'. Yet, the term 'plant health' (often used interchangeably with 'pest and disease control' or 'crop protection') is by and large used synonymously with establishment and enforcement of rules and regulations, as described by MAAIF: '…. *including issuance of import and export phytosanitary certificates … [and] plant pest prevention or eradication programmes. The department is also responsible for enforcing regulations on registration and the use of pesticides and other agrochemicals*'.[8] Stating that the Department is in charge of 'all matters related to plant health' is somewhat misleading. Many other actors play a significant role in delivering plant health support services, information and technologies to farmers: advisory services (NAADS, NGOs and private sector), research (universities, national and international research institutes) and input supply (agro input dealers, NAADS and NGOs). This semantic disagreement about the meaning of 'plant health' contributes to the 'orphaning' of the plant clinics. Many key documents retain this narrow and discordant definition of actor roles in plant health (or pest and disease control). For example, the base ATAAS document states that '*frontline extension workers, not engaged under the NAADS programme will be re-assigned to non-extension functions, such as pest and disease control*' (World Bank 2010a).

Lack of a clear belonging for the plant clinics and the associated mismatch between institutional mandates and allocated resources limited the scope of plant clinic actions both at district and central level. Table 3 illustrates the mandates and

[8] http://www.agriculture.go.ug/departments/91. Accessed 20 August 2014

Table 3 Mandate vs. resources of government agencies in Uganda for pest and disease control and agricultural extension (syn. advisory services)

Area	MAAIF	LG (non-NAADS)	NAADS
Pest and disease control			
Mandate	×××	×××	×
Resources	×	×	×
Agricultural extension			
Mandate	×	××	×××
Resources	×	×	××

×××−strong; ××− medium; ×−limited

relative resources of MAAIF, LG ('non-NAADS') and NAADS within pest and disease control and agricultural extension. MAAIF and LGs have the formal mandate to control pests and diseases yet they have limited resources and capacity to fulfil this mandate. On the other hand, NAADS has the mandate and resources to deliver extension (syn. advisory services), but NAADS' commodity orientation (farmer groups select up to three commodities) and the broader mandate of plant clinics ('any crop, any problem') are at odds.

How these mismatches were dealt with varied among the districts depending on the inclination of the LG leadership. Hoima, Soroti and Buikwe LGs saw no contradiction between the NAADS mandate and that of the plant clinics, while NAADS leadership in Mukono perceived the plant clinics as a separate LG responsibility that did not belong under the NAADS. The District NAADS Coordinator of Buikwe explained that the plant clinics were in the quarterly LG work plan and budget but not mentioned directly in the terms of reference of the NAADS service providers. '*The service providers have a list of things they are supposed to do, including 'any other duties as may be assigned from time to time*'. *So the plant clinics are covered, though not explicitly*,' he explained. In reality though, the plant clinics maintained their informal status. Several plant doctors mentioned that plant clinic sessions were sometimes cancelled due to clashes with the schedules of core NAADS activities. CABI's lack of attention to the structural misfit of plant clinics contributed to the notion that they were a 'CABI project'.

One of the weaknesses identified in the first phase of the NAADS was that the programme worked largely through its own parallel structure detached from the rest of the LG. That made it difficult to create the necessary synergies with the LG production departments (World Bank 2010b). The intention of the new phase of NAADS was thus to adjust and align better with the LG structure. However, some issues that place the plant clinics in a governance void remain. Some of the plant clinics in Buikwe, for example, were run by NAADS staff. Yet, as stated by the District NAADS Coordinator, '*The plant doctors do not report directly to me but to the District Production and Marketing Officer because in the work plan the plant clinics are not directly under NAADS advisory service.*' In the opinion of a senior MAAIF official the perceived mismatch between the mandates of NAADS vs. LG (non-NAADS) is not real:

> '*To think that NAADS doesn't work on pests and diseases is wrong. The plant clinics should be an instrument for NAADS to identify key problems, and then design an activity to be done. Few people have conceptualised it that way. NAADS provides advisory services on pest and diseases, soils, agronomy, value addition and so on. When you do extension you do it on all topics*'.

A sub-county chief of Ngora district agreed with this notion and suggested that NAADS should take over plant clinics since NAADS deals with production and have the staff to do so: '*You cannot deal with production without addressing pests and diseases*'.

According to Thomas and Grindle (1990), policies need an implementing agency with the requisite capacity and mandate to ensure systematic operationalization. Furthermore, the agency must have the necessary authority and space to adequately guide the operations of the local government officers (Tendler 1997). The implementation of plant clinics in Uganda has clearly lacked such implementing agency.

Addressing the challenges—in Uganda and elsewhere

Every country has its own history and political context that shapes institutions and policy implementation. In neighbouring Kenya, the introduction of plant clinics was much smoother than in Uganda for two reasons. First, the institutional structures and lines of authority gave the plant clinics a clear belonging from the start. Agricultural extension was centralised and managed directly by the Ministry of Agriculture, so when the Ministry approved plant clinics as a new extension method, the initial planning and start-up went fairly quickly. Second, the plant clinics fitted perfectly with the existing 'information desk' approach to extension (Romney et al. 2013). Unlike in Uganda where NAADS' commodity focus creates a mismatch with the plant clinic approach, the information desks address any problem presented by the farmers. Key challenges for Kenya are, however, to create functional linkages between the plant clinics and the regulatory services, which are managed by a semi-autonomous agency, KEPHIS (Kenya Plant Health Inspectorate Services), and to adjust to the new structures defined by the ongoing decentralisation reform which was introduced in the new Constitution of 2010. Also in other countries where plant clinics are introduced, such as Nicaragua, Peru and India, agricultural extension and/or regulatory

services fall under the responsibility of semi-autonomous organisations.

It is unlikely that the uncertainty about funding and future direction of the agricultural sector institutions in Uganda will change in the near future. Recently, the Government presented plans for a new major extension reform, which implies restructuring of NAADS and merging with LG extension as part of a centralised, so-called 'single spine' extension system, managed by a new directorate under MAAIF and supported by the army (*Daily Monitor* 27 January 2014; *New Vision* 21 March 2014; *Daily Monitor* 16 June 2014).[9] The lack of coherence in agricultural policy implementation in Uganda makes the implementation of plant clinics a major challenge. There is a risk that they will become just another project within a fragmented sector and remain at the periphery of budgets and policy plans.

The plant clinics do not fit easily into the existing structures due to their dual-purpose nature and the mismatch between mandates, authority and resources within the Ugandan institutions. In the initial agreements with CABI, MAAIF was given the role as coordinator and later as overall manager of the plant clinic data. Yet, this arrangement didn't take sufficient account of the institutional complexities and it never got to work as expected.

There was a general consensus among plant clinic staff and coordinators that the formal integration of plant clinics into NAADS is a key condition for institutionalisation and sustainability. This, however, would require a change in NAADS' current focus on a few crops and input supply, as well as clarity about roles and authority at the different governance levels. Drawing a parallel to human health, Mitchell and Bossert (2010) argue that a balance is needed between centralisation of some health system functions (e.g. handling disease outbreaks, administration of health information management system) and decentralisation of others (e.g. primary healthcare services) to achieve health system objectives. A debate about centralised vs. decentralised functions in plant health systems is a vital part of broadening the prevailing narrow interpretation of plant health.

Despite the unstable policy environment in Uganda, the official approval of plant clinics as a means to help safeguard plant health offers opportunities for negotiating solutions to the structural challenges identified in this paper. The question remains to what extent the commitment and enthusiasm of individuals can break the deep-rooted institutional barriers. In 2012, MAAIF in collaboration with the Plantwise programme of CABI started planning a major scale out of plant clinics across Uganda. For such expansion to become successful, the fundamental issues of governance, resources and implementation structure at districts vs. central level need to be considered.

Conclusion

Plant clinics have grown in popularity in Uganda since their inception in 2006. These farmer services are seen as a most needed means to support farmers in their effort to curtail the ever growing threats of pests and diseases. Incorporating plant clinics into the national strategy for agricultural development was a sign of political will by Uganda's government and an important step towards their institutionalisation. Yet, the political agendas surrounding agricultural policies in Uganda have created weak and fragmented institutions, undermining the implementation of the intended policy. The existence of a double-stranded extension system, NAADS and 'non-NAADS', with mismatching mandates and resources place the plant clinics in a void. Although MAAIF took the initiative to make plant clinics a government priority, the ministry's weak implementing capacity vis-a-vis decentralised delivery of agricultural extension makes it hard to make reality of the good intentions. Uganda faces a steep challenge in establishing appropriate institutional arrangements that grant plant clinics a solid basis for effective operation, despite a turbulent policy environment. The Ugandan experience shows the importance of understanding not only the policy and institutional frameworks in which plant clinics operate, but also the effects of political imperatives and donors on policy implementation. Decision-makers and implementers need to be aware of political agendas and institutional arrangements to understand the scope of interventions and to find ways to circumvent embedded obstacles that are not always clearly reflected in policy and strategy documents. The policy analysis presented here is specific for Uganda but many aspects of policy coherence and implementation apply to any country.

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[9] www.monitor.co.ug/News/National/Government-to-sack-all-Naads-district-coordinators/-/688334/2161478/-/12ik55az/-/index.html Accessed 20 August 2014

www.newvision.co.ug/news/653752-govt-restructures-naads-into-directorate.html Accessed 20 August 2014

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Solveig Danielsen is Research Coordinator of Plantwise, CABI. She holds a PhD in plant pathology from the University of Copenhagen and has 20 years experience of working in different aspects of plant health, agricultural research and extension, policies and institutions in developing countries. She has lived and worked in Costa Rica (CATIE), Peru (CIP), Nicaragua (FUNICA) and Uganda (Makerere University). Before joining CABI in 2012 she was an associate professor at the Centre for Health Research and Development, University of Copenhagen, where she and co-workers developed new concepts and approaches to plant health systems research.

Frank B. Matsiko is a Lecturer at the Department of Agricultural Extension and Innovation, Makerere University, Uganda. He holds a PhD in Agricultural Extension from Makerere University and has 8 years of experience working in administrative and grassroots agricultural extension. For a period extending over 25 years he has taught and researched agricultural and rural development policies and institutions in Uganda.

Anne Mette Kjær is an Associate Professor at the Department of Political Sciences, Aarhus University, Denmark, from where she also obtained her PhD. She has nearly 20 years experience as a researcher, fieldworker and analyst in the areas of governance and analysis of political economy and has published several articles on matters of aid and policy reform in journals such as *Public Administration and Development, Democratization*, *Journal of Modern African Studies* and *Forum for Development Studies.*